REMARKS

Entry of the foregoing, re-examination and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111, and in light of the remarks which follow, are respectfully requested.

By the above amendments, claim 2 has been amended for readability purposes by replacing the word "a" with "an." Claim 9 has been amended for clarification purposes to recite that "the intermediate layers comprise a layer formed by the composition forming the external layer, and a layer formed by the composition forming the internal layer." Claim 14 has been amended for readability and clarification purposes to recite that "the impact-resistance modifier . . . comprises a compound." Claim 15 has been amended for readability purposes to recite that "the impact-resistance modifier comprises a polyolefin." Claim 19 has been amended for readability and clarification purposes to depend from claim 5 and to replace the term "internal-type intermediate layers" with "internal intermediate layer." Claim 20 has been amended for readability purposes to replace the word "this" with "the."

It is respectfully noted that the Examiner-initialed form PTO-1449 mailed with the Official Action dated February 12, 2001 (Paper No. 6), does not contain the Examiner's initials for European Patent Document No. 0 527 237 (*EP '237*). For the Examiner's convenience, attached is a form PTO-1449 which cites *EP '237*. Issuance of an Examiner-initialed copy of the form PTO-1449 is respectfully requested.

In the Official Action, claims 12 and 24 stand rejected under 35 U.S.C. §112, first paragraph, for the reasons set forth at page 2 of the Official Action. Withdrawal of this rejection is respectfully requested for at least the following reasons.

The Official Action states that the specification does not discuss the term "flexural modulus" recited in claims 12 and 24. In this regard, Applicants respectfully submit that one skilled in the art would have recognized that the term "modulus" as recited in claims 12 and 24 relate to flexural modulus. The specification discusses that in an exemplary embodiment, a multilayer structure is provided with an excellent flexibility property (page 1, lines 10-13, page 2, lines 2-4). In light of the fact that the inventive multilayer structure can possess an excellent flexibility property, it is clear that the term "modulus" recited in the claims relates to flexural modulus. Accordingly, for at least the above reasons, withdrawal of the §112, first paragraph, rejection is respectfully requested.

Claims 1-12 and 19-26 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,219,003 (*Kerschbaumer*). Claim 13 stands rejected under 35 U.S.C. §103(a) as being obvious over *Kerschbaumer* in view of U.S. Patent No. 5,357,030 (*VanBuskirk et al*). Claims 14-18 stand rejected under 35 U.S.C. §103(a) as being obvious over *Kerschbaumer* in view of European Patent Document No. 0 646 627 (*EP '627*). Withdrawal of these rejections is respectfully requested for at least the following reasons.

According to one aspect of the present invention as defined by claim 1, a multilayer structure is provided comprising at least one internal layer and at least one external layer, wherein at least the internal layer is formed from a composition comprising at least one thermoplastic polyamide and at least one impact-resistance modifier present at a concentration by weight of between 10 and 50% of said composition. At least the external layer is formed from a composition comprising as a polymer matrix a polyamide composition comprising:

(i) a polyamide thermoplastic copolymer obtained by copolymerization of ε-caprolactam with at least one of the monomers comprising:

- an amino acid comprising at least 9 carbon atoms, or a corresponding lactam, or
- a mixture of hexamethylenediamine with a diacid comprising at least 9 carbon atoms,

the ratio by weight between the ε-caprolactam and the total amount of hexamethylenediamine and diacid and/or said amino acid being between 4 and 9, or

(ii) a mixture of at least said thermoplastic polyamide copolymer (i) and at least one second thermoplastic polyamide or copolyamide obtained by polymerization of monomers comprising fewer than 9 carbon atoms, the content by weight of the second polymer or copolymer in the polymer matrix being between 0 and 80% by weight.

Kerschbaumer relates to a fuel line which is made up of several layers of polyamide (col. 1, lines 5 and 6). *Kerschbaumer* discloses a multi-layered fuel line having an external layer consisting of impact resistance-modified types of polyamide which can contain plasticizer, and of a middle barrier layer consisting of a polyamide substantially free of impact resistance modifiers (col. 2, lines 28-33). *Kerschbaumer* also discloses that an internal layer of the tubing consists of polyamide 6 (col. 2, lines 39 and 40).

Kerschbaumer does not disclose or suggest each feature of one aspect of the present invention as defined by claim 1. For example, *Kerschbaumer* does not disclose or suggest a multilayer structure comprising an external layer formed from a composition comprising as a polymer matrix a polyamide composition recited in claim 1.

In the Official Action at page 3, the Patent Office has referred to the middle barrier layer disclosed by *Kerschbaumer* as "the first external layer," and has taken the position that such "first

external layer" corresponds to the external layer recited in claim 1. However, by renaming the middle barrier layer as "the first external layer," the Patent Office has mischaracterized the position of such layer in the multi-layered fuel line. The middle barrier layer of *Kerschbaumer* is, quite clearly, the middle layer of the multi-layered fuel line. *Kerschbaumer* has no disclosure or suggestion that the middle barrier layer constitutes the external layer of the multi-layered fuel line. Simply put, the middle barrier layer of *Kerschbaumer* is by definition not the same as the external layer recited in claim 1.

Moreover, it is respectfully noted that *Kerschbaumer* discloses that "the cold impact resistance of a multi-layered fuel line can be very high if a brittle barrier layer forms the middle layer of the tubing" (col. 2, lines 4-7). In light of *Kerschbaumer*'s disclosure of the advantageous effect of the position of the middle barrier layer, one of ordinary skill in the art would not have been motivated to modify *Kerschbaumer* by using the middle barrier layer as the external layer of the multi-layered fuel line.

Kerschbaumer further discloses that the middle barrier layer consists of a polyamide which is substantially free of impact resistance modifiers (col. 2, lines 31-33). In contrast, *Kerschbaumer* discloses using an external layer consisting of impact resistance-modified types of polyamide (col. 2, lines 28-30). In light of the apparent difference in functions of the middle barrier layer and the external layer, one of ordinary skill in the art would not have been motivated to modify the *Kerschbaumer* fuel line by using a material for forming the middle barrier layer to form the external layer.

At page 3 of the Official Action, the Patent Office has noted that *Kerschbaumer* does not disclose an internal layer formed from a composition comprising, *inter alia*, at least one impact-

resistance modifier present at a concentration by weight of between 10 and 50% of said composition, as recited in claim 1. The Patent Office has alleged that "Kerschbaumer discloses an impact resistance modifier present at a concentration by weight of 1%" (Official Action at page 3). Contrary to this assertion, *Kerschbaumer* has no disclosure of a "1%" concentration of an impact resistance modifier present in the composition for forming the internal layer thereof. For at least this reason, one of ordinary skill in the art would not have been motivated to modify the composition for forming the internal layer of *Kerschbaumer* to include an impact-resistance modifier present at a concentration by weight of between 10 and 50% of the composition.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness has been established with respect to *Kerschbaumer*.

The secondary applied documents fail to cure the above-described deficiencies of *Kerschbaumer*. In this regard, the Patent Office has relied on *VanBuskirk et al* for disclosing the addition of a chain extender to polyamide 6 for the purpose of improving the physical characteristics of the polyamide 6 (Official Action at page 5). Also, the Patent Office has relied on *EP '627* for disclosing an acid-modified ultra low density polyethylene which is used as an impact modifier of polyamide 6 (Official Action at pages 5 and 6). However, like *Kerschbaumer*, the secondary applied documents do not disclose or suggest a multilayer structure comprising an external layer formed from a composition comprising as a polymer matrix a polyamide composition recited in claim 1.

For at least the above reasons, no *prima facie* case of obviousness has been established. Accordingly, withdrawal of the above §103(a) rejections is respectfully requested.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: _____
Roger H. Lee
Registration No. 46,317

P.O. Box 1404
Alexandria, VA 22313-1404
(703) 836-6620

Date: May 28, 2003

Attachment to AMENDMENT dated May 28, 2003

Marked-up claims 2, 9, 14, 15, 19 and 20

2. (Twice Amended) Structure according to claim 1, wherein the composition forming the external layer comprises [a] an impact modifier.

9. (Three Times Amended) Structure according to claim 5, wherein [it comprises outer layers] the intermediate layers comprise a layer formed by the composition forming the external layer, and [at least one intermediate] a layer formed by the composition forming the internal layer [layers].

14. (Twice Amended) Structure according to claim 1, wherein the impact-resistance modifier contained in the composition forming the internal layer [is selected from the group comprising compounds] comprises a compound having a Tg below 0°C and a modulus of less than 200 Mpa.

15. (Twice Amended) Structure according to claim 14, wherein the [said] impact-resistance modifier comprises [is] a [compound selected from the] polyolefin [group].

19. (Twice Amended) Structure according to claim [1,] 5, wherein the composition forming the internal layer and/or the [internal-type] internal intermediate layer [layers] comprises a plasticizer for the polyamide, which is present at a concentration by weight of between 1 and 20% relative to the polyamide matrix.

20. (Twice Amended) Tube or pipe wherein the wall of [this] the tube or pipe has a multilayer structure according to claim 1.